

Construction and mode of operation

Switching medium

The vacuum switching technology of the vacuum interrupters, which has been proven for 30 years, serves as arcquenching principle.

Pole assemblies

The pole assemblies consist of the vacuum interrupters and the pole shells. The vacuum interrupters are air-insulated and freely accessible. The pole assemblies are fixed on the mounting plate of the operating mechanism and supported by means of the pole shell. The vacuum interrupter (3) is mounted rigidly to the upper interrupter support. The lower part of the interrupter is guided in the lower interrupter support, allowing axial movement. The pole shell (4) absorbs the external forces resulting from switching operations and the contact pressure.

Operating mechanism

The whole operating mechanism is mounted on its mounting plate, including the motor, releases, indicators and actuating devices.

Stored-energy operating mechanism

The operating mechanism is a stored-energy spring mechanism. The force

is transmitted from the operating mechanism to the pole assemblies via operating levers. The closing spring can be charged either electrically or manually and latches automatically in when charging is complete. The closing spring acts as the stored-energy mechanism. To close the breaker, the closing spring can be unlatched either mechanically by means of the local "ON" pushbutton or electrically by remote control. The closing spring charges the contact-pressure / opening springs as the breaker closes. The now discharged closing spring will be charged again automatically by the mechanism motor.

The breaker is now capable of performing the OPEN – CLOSE – OPEN operating sequence that is required for an unsuccessful auto-reclosing operation. All stored-energy mechanisms perform the switching duties of synchronizing and rapid load transfer as well as auto-reclosing.

Trip-free mechanism

In the event of an opening command being given after a closing operation has been initiated, the moving contacts return to the open position



and remain there even if the closing command is sustained. This means that the contacts of the vacuum circuit-breakers are momentarily in the closed position.

The motors for charging the closing spring operate in short-time duty. Therefore the voltage and power consumption might differ from the data of the rating plate.

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The information in this document contains general descriptions of the technical options available, which may not apply in all cases. The required technical options should therefore be specified in the contract.

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Technical data

Rated Normal Current	I_r	400 A	1200 A
Rated Voltage	U_r	12 kV	
Rated Lightning Impulse Voltage	U_p	CB 75kVpk CB and back parts 60kVpk*	
Rated Power Frequency Withstand Voltage	U_d	28 kV	
Rated Short Circuit Breaking Current	I_{sc}	13.1kA	25kA
Rated Short Circuit Making Current	I_{ma}	33 kA	63 kA
Rated Short Time Current		13.1 kA for 3 s	25 kA for 3 s

Reyrolle C-Gear Retrofit Solution

Reyrolle C-Gear Retrofit Solution

Siemens and Reyrolle are names synonymous with quality and expertise throughout the transmission and distribution industry and with the latest C-Gear retrofit circuit breaker; you can be sure of the highest quality solution and service.



Tests have been completed with panels of different types so that we can provide test evidence to cover your specific needs and ensure the total solution is effective.

The C-Gear retrofit has been specifically designed for customers to seamlessly interface with their existing Reyrolle panels replacing outdated oil circuit breaker units with a modern vacuum circuit breaker. This can be a simple retrofit to extend life and minimise maintenance requirements or as part of a comprehensive upgrading to enhance the ratings of installed equipment.

The retrofit solution has been developed using all of the Reyrolle application engineering knowledge acquired since the first development of C-Gear in 1906. This enables us to understand the particular application requirements of each customer installation to ensure a seamless and reliable retrofit solution.

As the original equipment manufacturer (OEM), we can also certify all ratings and performance documentation such that risks and uncertainty are avoided.

In our purpose built UK production facility, each C-Gear retrofit unit is guaranteed to interface with installed panels using the same jigs and fixtures as used for the production of the original equipment.



The Reyrolle C-Gear - simple to install

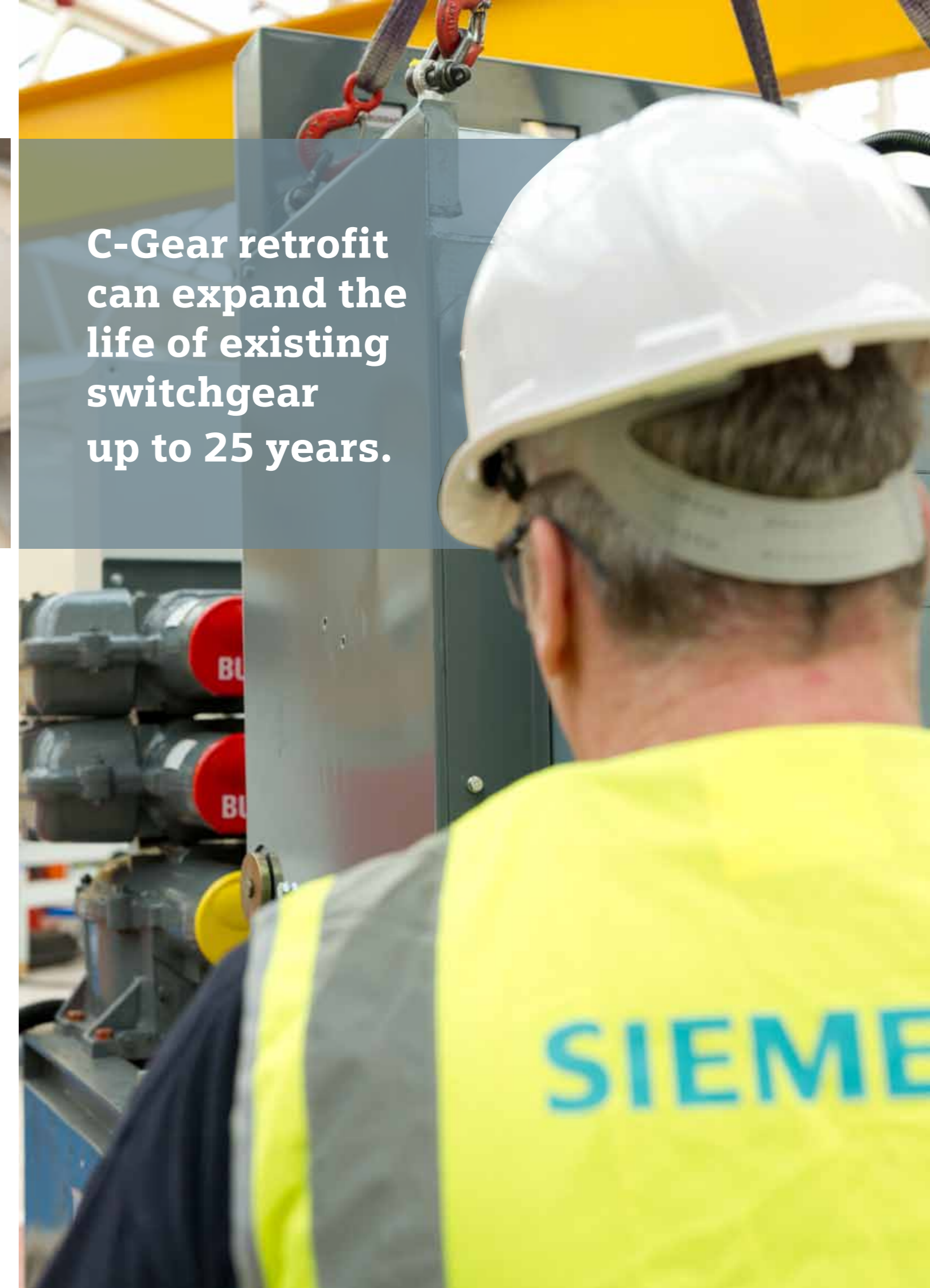
Type test

The C-Gear retrofit circuit breaker has been type tested at independently accredited test laboratories in accordance with IEC 62271-200 and other relevant IEC and national standards.

Tests have been completed with panels of different types so that we can provide test evidence to cover your specific needs and ensure the total solution is effective.



C-Gear retrofit can expand the life of existing switchgear up to 25 years.



Serving the market

Over 40,000 C-Gear units were installed worldwide and it is estimated that 25,000 are still in service. In support of this, the C-Gear retrofit can be applied to the complete installed base of the C-Gear product type.

Your benefits at a glance:

Reduced cost of ownership: Siemens SION vacuum devices require minimal maintenance, very high switching durability of vacuum, no oil or gas to handle.

Optimised life extension of existing switchgear:

C-Gear retrofit can expand the life of existing switchgear up to 25 years.

Minimal plant outage costs: Minimum disruption and site works required no modifications necessary to cable boxes.

Low cost compared to renewal: Total cost and time evaluation shows considerable advantages over replacement in many high density

distribution applications and also critical industrial applications.

Type tested and guaranteed: Fully type tested on actual panel types in accordance with IEC 62271-200.

Fast site delivery: In most cases equipment can be available six weeks following order receipt.

Full range of services: Including comprehensive switchgear survey, condition assessment, partial discharge monitoring etc.

Added value services

A key part of any retrofit project is the added value services that can be provided. We are pleased to offer the following directly from the Siemens Service Centre, UK, Reyrolle Works:

Condition assessment
Evaluation of equipment condition utilising condition monitoring techniques to assess existing condition, including full switchboard

partial discharge monitoring.

Spares and replacement parts
As the OEM, we offer the most comprehensive range of spare and replacement parts for all Reyrolle equipment. Reyrolle supplied spare parts uniquely match the original design and material specifications thus ensuring the safe guarantee of rated performances.

Protection and control
Automation, control and protection schemes can be upgraded at the same time as retrofitting to make use of enhanced functionality.

Environmental
Approved certification and evaluation body for SF6 Gas Handling & Training (according to "The F Gas Regulations"), SF6 decontamination and disposal services and expertise available.

The SION cassette is supplied complete from the advanced Siemens factory in Berlin and is fitted to the purpose designed housing and fully tested at the Reyrolle works, Hebburn, UK.